Let us have large buildings with costly apparatus and every convenience, but do not entirely crush the small schools. To the working man with limited time and means, weary with his day's toil, a modest school close at hand is of greater service than a huge building six miles away involving railway fare and loss of time. By careful arrangements such smaller schools can be preserved, and largely used as "feeders" for the institutes of magnitude.

The whole matter, therefore, of science and art schools and future Polytechnics should be referred to duly qualified men. There is no reason why existing machinery should not fit in with the new plant to make an harmonious whole.

OLIVER S. DAWSON.

NOTES.

THE autumn meeting of the Iron and Steel Institute was opened at the Royal Arsenal, Woolwich, on Tuesday, the greater part of the day being devoted to an examination of the various departments of the Arsenal. On Wednesday papers were discussed, and to-day visits are to be made to the Naval Exhibition, the Enfield Small Arms Factory, and the Thames Iron Works. We hope to print next week an account of the proceedings.

AN exhibition of cone-bearing trees and shrubs, asters, and sunflowers, and a conference upon them, were opened in the Royal Horticultural Society's Gardens, Chiswick, on Tuesday. Large numbers of conifers were sent from various parts of the country, no fewer than 30 collections coming from Scotland. The first prize was awarded to the Dowager Marchioness of Huntly for her collection of conifers, the second to Lord Wimborne. The largest araucarian cones were sent from Lady Fortescue's, at Dropmore, Maidenhead, where there is an araucaria 68 feet high—the tallest male araucaria in this country. Kew Gardens contributed about 200 different conifers. On Tuesday papers were read on asters and sunflowers. The conference on conifers began on Wednesday, and is being continued to-day.

A COMMISSION of engineers representing the various European Powers is to meet shortly at Cairo to consider the question of a storage reservoir, and to advise the Egyptian Government on the subject. The Commission will be required to select a site to the north of Wady Halfa, or within the present limits of Egypt.

THE organizers of the International Folk Lore Congress are to be congratulated on the success of their undertaking. The attendance was good; many excellent papers were read; and there were animated and suggestive discussions on most of the problems which are now of especial interest to students of folk-lore. Mr. Andrew Lang, as President, delivered the opening address, in which he presented a most interesting statement of what he conceives to be the fundamental principles of the science. Admirable addresses were also delivered by Mr. Sidney Hartland, Prof. Rhys, and Sir Frederick Pollock, who presided respectively over the Sections devoted to folk-tales, mythology, and institutions and customs. The members of the Congress dined together at the Criterion Restaurant on Tuesday evening.

STUDENTS of psychology and philosophy will read with regret Prof. Croom Robertson's "valedictory" words in *Mind*, from the editorship of which the state of his health makes it necessary for him to retire. For sixteen years he has done his work as editor with conspicuous ability and success. A second series of the Review will be begun next quarter. It will be under a co-operative direction which promises, Prof. Croom Robertson thinks, "a far more effective covering of the ground of psychology and philosophy than has hitherto been attained."

THE seventh of the series of One Man Photographic Exhibitions is now being held at the Camera Club. It is open to visitors from 10 a.m. to 4 p.m. on presentation of cards, which can be obtained from members or from the Hon. Secretary. The exhibition consists of photographs by Mr. Ralph W. Robinson.

WE learn from the *Botanical Gazette* that Mr. O. F. Cook, Instructor in Biology at the University of Syracuse, U.S.A., intends starting about November 1 in charge of an expedition to Liberia and other parts of Africa, with the object of studying the natural history of the country, especially the plants and insects. Mr. Cook will be glad to hear from anyone who would like to have material from that region.

YESTERDAY evening a meeting of the Medical Society, University College, London, was held in the Botanical Theatre, University College. Dr. W. H. Gaskell, F.R.S., delivered an address on a new theory of the origin of Vertebrates, deduced from the study of vertebrate anatomy and physiology.

THE Belgian Minister of Public Instruction offers a prize of 25,000 francs for the best memoir on the meteorological, hydrological, and geological conditions of the countries of equatoria Africa, regarded from the sanitary point of view. The subject must be studied with special reference to the welfare of Europeans resident in the Congo State.

IN the Proceedings of the Academy of Natural Sciences of Philadelphia for 1891, some parts of which have just reached us, there is an excellent memoir of the late Dr. Joseph Leidy, by Dr. Henry C. Chapman. It is followed by a list of Dr. Leidy's numerous writings.

IN a valuable paper on the "Rapakiwi," J. J. Sederholm, o the Geological Survey of Finland, has furnished petrographers with a trustworthy description of the mode of occurrence and minute structure of a granitic rock which has excited much interest, but has hitherto been very imperfectly understood. The official maps of the district where the Rapakiwi is found, with the accompanying memoirs, were published about a year ago; and the last number of Tschermak's *Mineralogischen und Petrographischen Mittheilungen*, now edited by Dr. F. Becke contains a full discussion of the petrological peculiarities of the rock. Writing from the famous laboratory of Heidelberg, Herr Sederholm naturally adopts the nomenclature of Prof. Rosenbusch, and it would appear from his description that the Rapakiwi will have to take its place among the numerous types of "granophyre" (using this term as Rosenbusch does, and not as originally defined by Vogelsang) which constitute links between the plutonic granites and the volcanic rhyolites. The excellent photographic illustrations accompanying the memoir give an admirable idea of the peculiar nodular structure of the rock, which has attracted so much attention to it. In the same journal, we find a second memoir by Herr Sederholm, on the Archæan rocks of South-West Finland, describing a varied series of igneous rocks, and discussing the effect of dynamo-metamorphic action upon them. The general conclusions of the author agree with those to which the study of similar rocks in other districts has led Lossen, Roland, Irving, Lehmann, Williams, Reusch, and Teall.

EXCELLENT arrangements have been made for the establishment of a good system of technical instruction in Essex. An organizing joint committee of the County Council and the Essex Field Club was lately appointed to deal with the question, and funds were placed at its disposal. This body has now issued a preliminary schedule of subjects to be taught. Local technical instruction committees are invited to select from the list one or more subjects which they may deem specially suitable for their respective neighbourhoods. When several such bodies, representing adjacent districts, have chosen a particular subject, the organizing committee will select a teacher or lecturer, and endeavour to arrange a circuit for him comprising the centres needing his services, apparatus and illustrations being provided by means of the fund for that purpose. By this means the aid of thoroughly qualified and equipped instructors may be obtained by the local committees at a cost considerably less than would be incurred if each centre were to act independently.

STRENUOUS efforts are being made in Scotland to secure that the country shall be supplied with a sound and adequate system of technical instruction. An important public meeting will be held at Edinburgh, on Thursday, October 29, for the consideration of the subject. Lord Elgin will preside, and it is expected that several members of both Houses of Parliament, and others interested in the question, will take part in the proceedings. The following are the provisional agenda:—(1) Chairman's address; (2) report on action taken up to this time by Town and County Councils—(*a*) in England, (*b*) in Scotland—with reference to the application of the sums available for technical education under the Local Taxation (Customs and Excise) Act, 1890; (3) the relation of the Local Taxation Act to technical (including commercial and agricultural) education; (4) report on various agencies already available for technical instruction in Scotland—(*a*) in rural districts, (*b*) in towns; (5) the amendments necessary in the Technical Schools (Scotland) Act, 1887.

THE Nicholson Institute, Leek, of which Sir Philip Magnus is President, has issued its Calendar for the session 1891–92; and an admirable Calendar it is, presenting many varied elements of interest. In the technical school connected with the Institute there will be classes for the study of wood-carving, modelling, bleaching, hygiene, and other subjects; and in the "science department" instruction will be given in botany, physiology, physiography, machine construction and drawing, and practical plane and solid geometry.

AN Agricultural and Mechanical College is about to be established at São Paulo, in Brazil, an endowment of 200,000 dollars having already been promised, and the further aid of the Government secured. The Presidency of the College has been offered to Prof. L. H. Bailey, the American botanist.

IN the Report for 1891 of the Governors of the Baltimore Fishing School, an interesting sketch of the history of the institution is given. The progress of the school encourages the Governors to believe that its success will prove of great advantage to Irish fisheries. They point out, however, that its operations are not on the enlarged scale originally contemplated; and to all who can appreciate the importance of the youth of the Irish coasts being trained in remunerative industrial pursuits, the Governors appeal for contributions to enable them to extend their work. The boys are thoroughly instructed in everything that pertains to the labours of fishermen. They also receive the literary education usual in such establishments; and a special class has been formed for the teaching of elementary navigation in connection with the Science and Art Department. At the last examination in this subject twenty-four pupils presented themselves. Of these, not one failed, twenty-two passing in the first division, and two in the second.

WE have received from the Meteorological Council a copy of the "Meteorological Observations at Stations of the Second Order" for the year 1887, containing observations and results for 66 stations. At 21 stations the observations taken at 9h. a.m. and 9h. p.m. are printed *in extenso*, and the whole work is on the same plan as in the volume for 1886 (NATURE, vol. xliii. p. 20), viz. the barometer observations are given without reduction to sea-level, and the differences between the dry and wet bulb thermometer readings are given as the "depression of wet-bulb." The maximum and minimum thermometers are read at 9h. p.m., and the readings entered to the day on which they were read. The rainfall is measured at 9h. a.m., and the amount registered entered to the previous day. Fog is only entered when the observer is quite enveloped in it. This work has been continued in a more or less complete form since 1866 (when, however, there was only one station); and the summaries contain, *inter alia*, very useful *résumés* of the state of the weather and wind-distribution, and afford excellent materials for preparing a revised climatology of the British Isles. The work is accompanied by a key map, showing the distribution of the stations, and indicating those which belong to the Royal and Scottish Meteorological Societies: it will be seen that all districts are well represented except, perhaps, on the more exposed western coasts and islands. A special table is also given, showing the number of hours of bright sunshine in each month for those stations at which sunshine-recorders exist.

THE Chief Signal Officer of the U.S. Army has, just before the transfer of the Meteorological Service to the Agricultural Department, issued three atlases, bearing upon the meteorology of the United States, showing—(1) The isobars, isotherms, and winds for each month from January to December for the years 1871–73, a period prior to the regular publication of the monthly charts. The data used include all the materials possessed by the Smithsonian Institution. (2) The probability of rainy days, prepared from observations for 18 years (1871–88). The average number of such days for all months and for each station has been calculated, and the percentages thus obtained are graphically shown on the charts. The data show great differences of distribution of rainfall in localities not far distant from each other; the influence of the prevailing direction of the wind in increasing the number of rainy days is particularly noticeable in the Lake region. (3) The average monthly cloudiness for the period 1871–88. Cloud observations show indirectly the relative amount of sunshine, as it may be assumed, within reasonable limits, that the complement of cloudiness will be sunshine. The investigation of this element is useful in determining the suitableness of certain localities for health resorts, or for the ripening of crops, and the charts may be considered as standard cloud maps of the United States.

DR. KING, Director of the Botanical Survey of India, has issued a Report on the working of the Botanical Survey in Assam and Burmah, for which 2000 rupees are annually allowed, with a view to arranging a plan for working by native collectors. Dr. King visited Assam in the latter half of last year, and found the local authorities ready to afford every assistance. Two native collectors were secured, and set to work near Golaghat, and in the Khasia Hills. The Conservator of Forests also sent a large number of specimens to the Herbarium at Calcutta, and a Eurasian collector was employed for a time in Cachar. Some interesting plants were also obtained from the base of the Eastern Himalayas. Fairly good work was done in Upper Burmah by a native collector, and his specimens are now in course of being arranged at the Calcutta Herbarium. The collecting agencies continue working during the present year.

DR. PRAIN, the Curator of the Herbarium of the Calcutta Botanical Gardens, accompanied the surveying ship *Investigator* during part of her operations in the Bay of Bengal last year. By a special arrangement, Dr. Prain was put down on the Great Coco Island for a few days, and was also enabled to pay short visits to the Little Coco and to Rutland Islands. Except for the visit made by Dr. Prain under similar circumstances the previous year, the Great Coco had not before been explored by a botanist, and the Little Coco and Rutland Islands were this year visited for the first time. Accounts of these visits are to be officially published in due course.

A NUMBER of small expeditions in the Chin Hills and on the Bhamo frontier of Upper Burmah have been arranged for next cold season. In the Chin country, a column will explore the Chinboh country, and four other columns will visit the Baunghshe, Tashon, Tlangton, Kanhow, and Nwengal tribes. In order to effect a settlement of the Kachyen tribes, columns will be sent out from Bhamo, Mogoung, and Myitkynia. An expedition will also proceed to explore the amber-mines and the india-rubber tracts, and, if practicable, join hands with Assam.

To estimate the relative merits of different kinds of points for lightning conductors, Dr. Hess recently collected and examined nineteen heads of conductors that had been struck by lightning (*Electrot. Zeits.*). His conclusions are as follows: (1) the fusion of points of lightning conductors by lightning causes no danger of fire through scattering of fused drops, for this does not occur; (2) fine and smooth points receive the lightning stroke in concentrated form, while sharply angled and ribbed, also blunt points, divide it into threads; (3) platinum needles and tips have no advantage over copper points; (4) there are lightning strokes which are capable of making brass wire 7·2 mm. (say 0·29 inch) thick, incandescent. Unbranched copper conductors should therefore never be thinner than 7·0 mm.

IN submitting to the Wellington Philosophical Society some "Coccid Notes" lately, Mr. W. M. Maskell expressed regret that entomologists generally did not devote more attention to the Coccidæ. He believed he was the only person in New Zealand who had published anything on the subject. In the Coccidæ there was infinite variety—a variety of life-history, habits, and customs that seemed greater than that afforded by any other branch of entomology. He gave instances of peculiarities in these insects—wonderful vitality in some cases, and the boring habits of one particular insect after it had thrown off legs, mouth, &c.—all tending to prove that these little despised creatures were more interesting for study than "all the butterflies"

FARMERS in many parts of Victoria seem to be fully alive to the necessity of adapting their methods to the conditions under which they have to carry on their work. Mr. David A. Crichton, in a report printed in the latest Bulletin (No. 12) of the Victoria Department of Agriculture, says that, although farmers are supposed to be too conservative in their practice to do much in the way of new industries, he has been agreeably surprised to find that a very large number are anxious to try crops other than cereals. Fruit culture in particular is attracting great attention, and he feels confident that before long it will become one of the staple agricultural industries of the colony. He is doing his best to stimulate this particular industry, and, in addition to the information afforded by his lectures, he makes it a practice to visit as many places as possible, to advise upon the selection of sites for orchards and vineyards, and give practical lessons in pruning, training, and other matters. He finds that this assistance is highly appreciated, and his services are in great demand in this respect. Mr. Crichton's position in connection with the Victoria Department of Agriculture is that of "the fruit and special industries' expert."

MR. JOHN H. COOKE is publishing in the *Mediterranean Naturalist* an interesting series of observations on the geology of the Maltese islands. In the September number he refers to Cala Hein, a little bay between Comino and Cominotto. On a bright day, he says, this bay presents an endless succession of the most brilliant colours, "which commences with a deep blue, and from thence passes through every conceivable gradation of green, orange, and white, after attaining the last of which it again graduates onward in the distance to that cerulean blue that is so characteristic of Mediterranean waters." The setting of the picture is not less effective than the picture itself. Around the bay are many caverns, which have sombre-looking entrances and wildly-fantastic shapes. The sides of these caverns are full of interest for geologists, as "they literally teem with the remains of creatures that formerly lived and died in the waters in which the islands were built up."

MR. W. PRENTIS, of Rainham, Kent, describes in the October number of the *Zoologist* an interesting case of a wild duck's forethought. A mowing machine was set to work round the outside of a field of lucerne bordering a marsh, diminishing the circle each time round the field, leaving about two acres in the centre. A wild duck was seen by the shepherd to fly from the piece of lucerne that was left with something in her beak, and, happening to fly near him, she dropped a three parts incubated egg. She was again observed by the shepherd, and also by the sheep-shearer, carrying another egg in her beak, this time over the marsh-wall towards the saltings; and again she was seen for the third time carrying an egg in her beak in the same direction. Next day, when the field was "finished" by the removal of the last piece of lucerne, the wild duck's nest from which the eggs had been removed was discovered.

MR. W. H. HARRIS, Ealing, records in *Nature Notes* (September 15) a remarkable instance of "frugality" in bees. The recent extremely rainy weather seems to have suggested to his bees that there would probably soon be an end of honey-making. Accordingly, although there was "a crate of fairly filled sections above the stock-box," they adopted vigorous measures to prevent future inconvenience. "It is a positive fact," says Mr. Harris, "that my bees, not content with ejecting larvæ of both drones and workers, proceeded to suck out the soft contents of the corpses, leaving only the white chitinous covering, which had not hardened sufficiently to prevent the workers from piercing it with their mandibles, and then inserting their tongues."

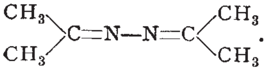
MESSRS. R. FRIEDLÄNDER AND SON, Berlin, send us the latest of their catalogues of botanical books. This list, besides various works on the distribution of plants and on botanical exploration, includes a great number of writings on the floræ of different parts of the world.

MESSRS. KEGAN PAUL, TRENCH, TRÜBNER, AND CO. announce the following books on scientific subjects:—"Colour Blindness and Colour Perception," by F. W. Edridge-Green, M.D., with three coloured plates (International Scientific Series); "Descriptive Catalogue of the Nests and Eggs of Birds found breeding in Australia and Tasmania," by A. J. North, with 21 full-page plates; "English Folk Rhymes," by G. F. Northall; the following volumes of a series, "Modern Science," to be edited by Sir John Lubbock—"The Cause of an Ice Age," by Sir Robert Ball, F.R.S., "The Horse: a Study in Natural History," by William Henry Flower, C.B., "The Oak: a Popular Introduction to Forest Botany," by H. Marshall Ward, F.R.S., "The Laws and Properties of Matter," by R. T. Glazebrook, F.R.S.;—"On Seedlings," by Sir John Lubbock, with numerous figures in text; "How to Use the Ophthalmoscope," elementary instruction in ophthalmoscopy, by Edgar A. Browne, fourth edition, completely revised; "Principles of Political Economy," by Arthur Latham Perry; "Moral Order and Progress," an analysis of ethical conceptions, by S. Alexander, second edition (Trübner's Philosophical Library); "Chemistry of the Carbon Compounds, or Organic Chemistry," by Prof. Victor von Richter, authorized translation by Edgar F. Smith, new and enlarged edition.

Two more papers by Prof. Curtius, upon the reactions of the hydrate of his recently isolated hydrazine or diamidogen, $\begin{matrix}NH_2\\|\\NH_2\end{matrix}$, are contributed to the most recent numbers of the *Journal für praktische Chemie*. The earlier communication describes, for the first time, the neutral sulphate of hydrazine

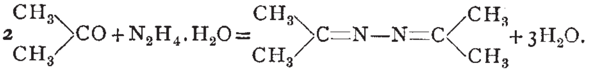
$(N_2H_4)_2 . H_2SO_4$. Hydrazine is found to form two sulphates—an acid one, $N_2H_4 . H_2SO_4$, and the neutral one now described. The acid sulphate is a beautifully crystalline salt—an account of which was given in NATURE, vol. xliii. p. 205. It is distinguished by its high melting-point, 254° C., and its difficult solubility. The neutral sulphate now described is obtained by evaporation of the solution formed by neutralizing hydrazine hydrate with dilute sulphuric acid, first, over a water-bath, and finally, as the new salt is very deliquescent, *in vacuo*. It crystallizes in large brilliant tables, melting at 85°. It is precipitated in a most curious manner from its aqueous solution by alcohol, separating as an oil, which, on being stirred with a glass rod, and in contact with a small crystal of the salt, immediately solidifies to a fine mass of crystals, which, like those obtained by evaporation, consist of anhydrous $(N_2H_4)_2 . H_2SO_4$.

THE second and much longer communication describes an important series of new compounds, the ketazines, obtained by the action of hydrazine hydrate upon ketones. The simplest of these new substances, the one obtained by the action of hydrazine hydrate upon acetone, is represented by the formula



$$\begin{matrix} CH_3 \\ CH_3 \end{matrix} \!\!> C{=}N{-}N{=}C <\!\! \begin{matrix} CH_3 \\ CH_3 \end{matrix}$$

. When hydrazine hydrate is dropped upon acetone, a most violent reaction occurs, resulting in an explosion unless the acetone is surrounded by a freezing mixture. When thus moderated, however, the substance above formulated is produced together with water, the reaction occurring according to the following equation :—



$$2\begin{matrix} CH_3 \\ CH_3 \end{matrix} \!\!> CO + N_2H_4 . H_2O = \begin{matrix} CH_3 \\ CH_3 \end{matrix} \!\!> C{=}N{-}N{=}C <\!\! \begin{matrix} CH_3 \\ CH_3 \end{matrix} + 3H_2O.$$

By allowing the product to remain for some hours in contact with caustic potash the water is removed, and upon distillation the new ketazine passes over in the pure state. It is a clear liquid possessing a sharp odour somewhat resembling that of the alkaloid coniine. It boils without decomposition at 131°. By employing other ketones, such as methyl ethyl ketone, diethyl ketone, and others of the same type, a large number of these ketazines have been prepared. Those containing fatty radicles are liquids, and those containing aromatic groups are solids. The lowest members only dissolve in water, the solubility rapidly diminishing with increase of carbon atoms. Acids decompose them in the cold, with assimilation of water, into their constituents ; towards alkalies, however, they are comparatively stable. Light exerts a decomposing action upon them, specimens placed in bright sunshine rapidly becoming yellow. Reducing agents, such as sodium amalgam, are without action upon them, and they appear further to be incapable of reducing either Fehling's solution or (except after long boiling) ammoniacal solutions of silver salts.

THE additions to the Zoological Society's Gardens during the past fortnight include two —— Cormorants (*Phalacrocorax*, sp. inc.) from New Zealand, presented by the Earl of Onslow, G.C.M.G. ; a Velvet Monkey (*Cercopithecus lalandii* ♀) from South Africa, a White-fronted Lemur (*Lemur albifrons* ♀) from Madagascar, presented by Captain R. C. Stevenson ; a Golden Agouti (*Dasyprocta agouti*), a Garden's Night Heron (*Nycticorax gardeni*), a —— Heron (*Ardea*, sp. inc.) from Surinam, presented by Mr. Frank Fisher ; a Common Paradoxure (*Paradoxurus typus*) from India, presented by Miss Bason ; two Blackcaps (*Sylvia atricapilla*), two Lesser Whitethroats (*Sylvia curruca*), two Goldfinches (*Carduelis elegans*), a Marsh Tit (*Parus palustris*), British, presented by Mr. J. Young, F.Z.S. ; three Common Vipers (*Vipera berus*), British, presented by Messrs. A. H. R. and F. R. Wollaston ; a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. Gwynne ; an Indian Civet (*Viverricula malaccensis*) from India, presented by Mr. Herbert Courtney Hodson ; two Chilian Sea Eagles (*Geranoaëtus melanoleucus*) from Chili, presented by Mr. H. Berkeley James, F.Z.S. ; two Grey-breasted Parrakeets (*Bolborhynchus monachus*) from Monte Video, presented by Mr. J. C. Wallace ; two Nightingales (*Daulias luscinia*), two Common Whitethroats (*Sylvia cinerea*), a Blackcap (*Sylvia atricapilla*), British, presented by Mr. J. Young, F.Z.S. ; four Yellow Wagtails (*Motacilla raii*), British, presented by Mr. W. Swaysland ; a Common Cormorant (*Phalacrocorax carbo*) from Scotland, presented by Mr. F. T. Barry, M.P. ; fifteen Striped Snakes (*Tropidonotus sirtalis*) from North America, presented by Mr. J. Gray ; a Solitary Thrush (*Monticola cyanus*), European, a Macaque Monkey (*Macacus cynomolgus*) from India, deposited ; a Sharpe's Wood Owl (*Syrnium nuchale*) from West Africa, a Testaceous Snake (*Ptyas testacea*) from California, two Quebec Marmots (*Arctomys monax*) from North America, two Scaly Doves (*Scardafella squamosa*) from South America, purchased ; a Ruddy-headed Goose (*Bernicla rubidiceps*) from Falkland, received in exchange.

OUR ASTRONOMICAL COLUMN.

PHYSICAL APPEARANCE OF PERIODIC COMETS.—Comets possess no personal characteristic appearance ; but Mr. Barnard, writing to the *Astronomical Journal*, No. 246, suggests that it may be possible to arrange those of short period according to their physical peculiarities. To the first class he would assign those comets which are large, round, and very gradually brighter in the middle, with no special condensation, and of a very diffused nature. They have no nucleus or tail, and are so decidedly periodic that, trusting to this peculiarity, Mr. Barnard predicted that the comet discovered by Swift in November 1889, and D'Arrest's comet at its return last year, were of short period. The most distinctive members of this class of comets are D'Arrest's, Swift's 1880, Brooks's 1886, and Swift's 1889. There are few nebulæ that resemble this class. A much larger and less exclusive class contain comets which are comparatively small, and which have an indefinite central brightness or nucleus. Many of the parabolic comets resemble these, and there are hundreds of nebulæ exactly like them in telescopic appearance. To this class are assigned comets Faye ; Wolf, 1884 III. ; Finlay, 1886 VII. ; Brooks, 1889 V. ; Spitaler, 1890. It is possible that the peculiarities of these two distinct classes of short-period comets may furnish some information as to their relative ages.

DISCOVERY OF TEMPEL-SWIFT'S COMET.—Mr. Barnard found this comet on September 28, and Mr. W. F. Denning discovered it independently two days later about 4° south-west of its computed position. The comet passes perihelion in November. Its position, according to M. Bossert's ephemeris, is as follows :—

Ephemeris for Paris Midnight.

1891.	Right Ascension. h. m. s.	Declination. ° ′	Brightness.
Oct. 6	21 6 2	+ 3 24·8	7·01
,, 8	6 19	3 54·0	
,, 10	6 55	4 24·7	7·77
,, 12	7 51	4 56·9	
,, 14	9 9	5 30·8	8·61
,, 16	10 48	6 6·4	
,, 18	12 49	6 43·9	9·54
,, 20	15 13	7 23·4	
,, 22	18 0	8 4·8	10·54
,, 24	21 12	8 48·3	
,, 26	24 50	9 34·0	11·64
,, 28	28 56	10 22·2	
,, 30	21 33 30	11 12·8	12·83

The comet is therefore in Equuleus at the present time, and moving towards Pegasus.